REMARKS

Claims 1-37 are pending in the present application. In the above amendments, claims 8 and 27 have been amended.

The May 10, 2005 Office Action rejected claims 1-3, 14, 15, 20-22 and 30-32 under 35 U.S.C. § 102(e). The Office Action rejected claims 4-7, 11-13, 16-19, 23-26 and 33-37 under 35 U.S.C. § 103(a). The Office Action also objected to claims 8-10 and 27-29.

Applicants respectfully respond to this Office Action.

A. Allowable Subject Matter

The Office Action indicated that claims 8-10 and 27-29 would be allowable if rewritten in independent form. Claims 8 and 27 have been rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 9-10 depend from claim 8. Claims 28-29 depend from claim 27. Allowance of claims 8-10 and 27-29 is respectfully requested.

B. Claims 1-3, 14, 15, 20-22 and 30-32 Rejected Under 35 U.S.C. § 102(e)

The Office Action rejected claims 1-3, 14, 15, 20-22 and 30-32 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,628,707 to Rafie et al. (hereinafter, "Rafie"). This rejection is respectfully traversed.

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." MPEP § 2131 (citing Verdegaal Bros. v. Union Oil Co. of California, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987)). "The identical invention must be shown in as complete detail as is contained in the ... claim." Id. (citing Richardson v. Suzuki Motor Co., 9 USPQ2d 1913, 1920 (Fed. Cir. 1989)). In addition, "the reference must be enabling and describe the applicant's claimed invention sufficiently to have placed it in possession of a person of ordinary skill in the field of the invention." In re Paulsen, 31 USPQ2d 1671, 1673 (Fed. Cir. 1994).

Applicants respectfully submit that the claims at issue are patentably distinct from Rafie. Rafie does not disclose all of the limitations in these claims. Claim 1 recites "[a] method for

estimating a signal to interference-plus-noise ratio (SINR) of a wireless channel..." Rafie does not disclose this limitation. Rather, Rafie discloses:

> "A method for an adaptive equalization apparatus...to receive variable-length bursts of radio signals...equalizing amplitude and phase variations...storing the estimated tap coefficients...and using the tap weights of the current burst...to reliably pre-compensate the channel amplitude and phase distortion of a next received burst on the radio link."

Rafie, Abstract.

Rafie's method to receive variable-length bursts of radio signals and equalizing amplitude and phase variations is not a method for "estimating a signal to interference-plus-noise ratio (SINR) of a wireless channel." Similarly, Rafie's method for storing the estimated tap coefficients and using the tap weights to pre-compensate the channel amplitude and phase distortion is not a method for "estimating a signal to interference-plus-noise ratio (SINR) of a wireless channel" as disclosed in claim 1.

Claim 1 further recites, "determining a parameter using said output[.]" Rafie does not disclose this limitation. Rafie discloses, "[t]he equalizer 506 performs a T/M-spaced (i.e., M=2) adaptive equalization process and an equalized and carrier-phase-error compensated signal is produced at the output 522." Rafie, Col. 11, lines 18-21. Rafie does not disclose that the parameter was determined using said output. Instead, Rafie merely discloses that the parameter "is produced at the output." Id. Further, the Office Action asserts that Rafie discloses "generat[ing] a parameter, the parameter being an equalized output signal shown in figure 5." Office Action, page 3. Thus, the Office Action also seems to concede that Rafie does not disclose "determining a parameter using said output" because according to the Office Action the parameter is the output.

Claim 1 also recites, "estimating the SINR of the wireless channel using said parameter." Rafie also does not disclose this limitation. The Office Action asserts that Rafie discloses "[t]his signal is used to estimate the SNR of the channel." Office Action, page 3. Applicants respectfully disagree. Rafie discloses, "[a]s part of the adaptive equalization process, equalizer weights are produced by the adaptive equalizer 506 using a complex LMS algorithm." Rafie, Col. 11, lines 21-23. Producing equalizer weights, as disclosed by Rafie, is not "estimating the SINR of the wireless channel" as recited in claim 1. Also, the equalizer weights are produced

"using a complex LMS algorithm." Id. The weights are not produced using said parameter as disclosed in claim 1.

Rafie further discloses, "[t]he selection of μ_k is software controlled and is based on the estimated signal-to-noise ratio, SNR, at the output of the equalizer and other side-channel information provided to the MAC layer 650." Rafie, Col. 11, lines 60-63. The estimated signal-to-noise ratio, as disclosed by Rafie, is now at the output of the equalizer. Id. However, Rafie does not disclose that the SINR is estimated using said parameter as disclosed in claim 1. The Office Action asserted above that Rafie discloses "the parameter being an equalized output." Office Action, page 3. As shown, Rafie does not disclose "estimating the SINR of the wireless channel using said parameter." Rafie simply discloses that the estimated signal-to-noise ratio is "at the output of the equalizer." Id.

In view of the foregoing, Applicants respectfully submit that independent claim 1 is patentably distinct from Rafie. Accordingly, Applicants respectfully request that the rejection of this claim be withdrawn.

Claims 2-3 depend either directly or indirectly from claim 1. Accordingly, Applicants respectfully request that the rejection of claims 2-3 be withdrawn for at least the same reasons as those presented above in connection with claim 1.

Referring now to claim 14, Rafie does not disclose all of the limitations in this claim. Claim 14 recites "[a] method for estimating a signal to interference-plus-noise ratio (SINR) of a wireless channel...", "determining a parameter using said output," and "estimating the SINR of the wireless channel using said parameter." As argued above with respect to claim 1, Rafie does not disclose the aforementioned limitations.

In addition to the arguments previously set forth above in relation to claim 1, claim 14 further recites, "applying an adaptive equalizer to the pilot portion of a current frame, wherein said adaptive equalizer was adapted during a previous frame, resulting in an output[.]" Rafie does not disclose an adaptive equalizer that was adapted during a previous frame. Rafie discloses, "[f]or adaptive equalization, first a fixed equalizer is used to pre-compensate the amplitude and delay distortion of a slow-varying channel. A coarse phase estimate is made of the carrier phase recovery unit using pilot symbols of the received data." Rafie, Col. 14, lines 41-46. Rafie discloses estimating the carrier phase recovery unit. Id. Such estimation is made using

pilot symbols of the received data. Id. However, estimating the carrier phase recovery unit using pilot symbols of the received data is not "an adaptive equalizer [that] was adapted during a previous frame" as disclosed in claim 14.

In view of the foregoing, Applicants respectfully submit that independent claim 14 is patentably distinct from Rafie. Accordingly, Applicants respectfully request that the rejection of this claim be withdrawn.

Claim 15 depends either directly or indirectly from claim 14. Accordingly, Applicants respectfully request that the rejection of claim15 be withdrawn for at least the same reasons as those presented above in connection with claim 14.

Referring now to claim 20, Rafie does not disclose all of the limitations in this claim. Claim 20 recites "means for determining a parameter using said output; and means for estimating a SINR of the wireless channel using said parameter." As argued above with respect to claim 1, Rafie does not disclose "determining a parameter using said output," nor does it disclose "estimating the SINR of the wireless channel using said parameter." As such, Rafie does not disclose means for determining a parameter using said output, nor does it disclose means for estimating a SINR of the wireless channel using said parameter.

In view of the foregoing, Applicants respectfully submit that independent claim 20 is patentably distinct from Rafie. Accordingly, Applicants respectfully request that the rejection of this claim be withdrawn.

Claims 21-22 depend either directly or indirectly from claim 20. Accordingly, Applicants respectfully request that the rejection of claims 21-22 be withdrawn for at least the same reasons as those presented above in connection with claim 20.

Referring now to claim 30, Rafie does not disclose all of the limitations in this claim. Claim 30 recites "wherein said receiver is configured to determine a parameter using said output, and wherein said receiver is further configured to estimate the SINR of the wireless channel using said parameter." As explained in relation to claim 1, Rafie does not disclose determining a parameter using said output or estimating the SINR of the wireless channel using said parameter.

In view of the foregoing, Applicants respectfully submit that independent claim 30 is patentably distinct from Rafie. Accordingly, Applicants respectfully request that the rejection of this claim be withdrawn.

Claims 31-32 depend either directly or indirectly from claim 30. Accordingly, Applicants respectfully request that the rejection of claims 31-32 be withdrawn for at least the same reasons as those presented above in connection with claim 30.

C. Claims 4, 11-13, 16, 23, and 33 Rejected Under 35 U.S.C. § 103(a)

The Office Action rejected claims 4, 11-13, 16, 23, and 33 under 35 U.S.C. § 103(a) based on Rafie in view of U.S. Patent No. 6,680,985 to Strodtbeck et al. (hereinafter, "Strodtbeck"). This rejection is respectfully traversed.

The M.P.E.P. states that

> To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure.
>
> The initial burden is on the examiner to provide some suggestion of the desirability of doing what the inventor has done. To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references.

M.P.E.P. § 2142.

Applicants respectfully submit that the claims at issue are patentably distinct from the cited references. The cited references do not teach or suggest all of the limitations in these claims.

The Office Action contends that Strodtbeck discloses using a bias to adapt the equalizer shown in figure 1. Office Action, page 3. However, Strodtbeck does not teach or suggest determining a parameter using said output, and estimating the SINR of the wireless channel using said parameter as cited in claims 1, 14, 20, and 30.

In the present case, claims 4, 11-13, 16, 23, and 33 depend from claims 1, 14, 20, and 30 and therefore include all the limitations of those independent claims such as determining a

parameter using said output and estimating the SINR of the wireless channel using said parameter. As previously explained, such limitations are not disclosed in Rafie. Accordingly, because the combination of Rafie and Strodtbeck does not teach or suggest all of the limitations found in claims 4, 11-13, 16, 23, and 33, these references do not render the present claims prima facie obvious under 35 U.S.C. § 103(a). Withdrawal of this rejection is respectfully requested.

D. Claims 5, 6, 24, 25, 34, and 35 Rejected Under 35 U.S.C. § 103(a)

The Office Action rejected claims 5, 6, 24, 25, 34, and 35 under 35 U.S.C. § 103(a) based on Rafie in view of U.S. Patent No. 6,310,915 to Wells et al. (hereinafter, "Wells"). This rejection is respectfully traversed. The standard to establish a *prima facie* case of obviousness is provided above.

Applicants respectfully submit that the claims at issue are patentably distinct from the cited references. The cited references do not teach or suggest all of the limitations in these claims.

The Office Action contends that Wells discloses that it is desired to re-encode a previously encoded signal. Office Action, page 4. However, Wells does not teach or suggest determining a parameter using said output, and estimating the SINR of the wireless channel using said parameter as cited in claims 1, 20, and 30.

In the present case, claims 5, 6, 24, 25, 34, and 35 depend from claims 1, 20, and 30 and therefore include all the limitations of those independent claims such as determining a parameter using said output and estimating the SINR of the wireless channel using said parameter. As previously explained, such limitations are not disclosed in Rafie. Accordingly, because the combination of Rafie and Wells does not teach or suggest all of the limitations found in claims 5, 6, 24, 25, 34, and 35, these references do not render the present claims prima facie obvious under 35 U.S.C. § 103(a). Withdrawal of this rejection is respectfully requested.

E. Claims 7, 26, and 36 Rejected Under 35 U.S.C. § 103(a)

The Office Action rejected claims 7, 26, and 36 under 35 U.S.C. § 103(a) based on Rafie in view of Wells and further in view of Strodtbeck. This rejection is respectfully traversed. The standard to establish a *prima facie* case of obviousness is provided above.

Applicants respectfully submit that the claims at issue are patentably distinct from the cited references. The cited references do not teach or suggest all of the limitations in these claims.

The Office Action contends that Strodtbeck discloses using a bias to adapt the equalizer shown in figure 1. Office Action, page 5. However, Strodtbeck does not teach or suggest determining a parameter using said output, and estimating the SINR of the wireless channel using said parameter as cited in claims 1, 20, and 30.

In the present case, claims 7, 26, and 36 depend from claims 1, 20, and 30 and therefore include all the limitations of those independent claims such as determining a parameter using said output and estimating the SINR of the wireless channel using said parameter. As previously explained, such limitations are not disclosed in Rafie. Accordingly, because the combination of Rafie and Wells and further in view of Strodtbeck does not teach or suggest all of the limitations found in claims 7, 26, and 36, these references do not render the present claims prima facie obvious under 35 U.S.C. § 103(a). Withdrawal of this rejection is respectfully requested.

F. Claims 17, 18, and 37 Rejected Under 35 U.S.C. § 103(a)

The Office Action rejected claims 17, 18, and 37 under 35 U.S.C. § 103(a) based on Rafie in view of U.S. Patent No. 5,914,959 to Marchetto et al. (hereinafter, "Marchetto"). This rejection is respectfully traversed. The standard to establish a *prima facie* case of obviousness is provided above.

Applicants respectfully submit that the claims at issue are patentably distinct from the cited references. The cited references do not teach or suggest all of the limitations in these claims.

The Office Action contends that Marchetto discloses a scheme that reduces the data transmission rate as the SINR becomes poor. Office Action, page 6. However, Marchetto does not teach or suggest determining a parameter using said output, and estimating the SINR of the wireless channel using said parameter as cited in claims 17 and 37.

Applicants thus respectfully submit that claims 17 and 37 are not rendered obvious by Rafie when considered alone or in combination with Marchetto. In the present case, claim 18 depends from claim 17 and therefore includes all the limitations of that independent claim such

as determining a parameter using said output and estimating the SINR of the wireless channel using said parameter. As previously explained, such limitations are not disclosed in Rafie. Accordingly, because the combination of Rafie and Marchetto does not teach or suggest all of the limitations found in claims 17, 18, and 37 these references do not render the present claims prima facie obvious under 35 U.S.C. § 103(a). Withdrawal of this rejection is respectfully requested.

G. Claim 19 Rejected Under 35 U.S.C. § 103(a)

The Office Action rejected claim 19 under 35 U.S.C. § 103(a) based on Rafie in view of Marchetto and further in view of Strodtbeck. This rejection is respectfully traversed. The standard to establish a *prima facie* case of obviousness is provided above.

Applicants respectfully submit that the claim at issue is patentably distinct from the cited references. The cited references do not teach or suggest all of the limitations in this claim.

The Office Action contends that Strodtbeck discloses using a bias to adapt the equalizer shown in figure 1. Office Action, page 6. However, Strodtbeck does not teach or suggest determining a parameter using said output, and estimating the SINR of the wireless channel using said parameter as cited in claim 17.

Applicants thus respectfully submit that claim 17 is not rendered obvious by Rafie when considered alone or in combination with Marchetto and Strodtbeck. In the present case, claim 19 depends from claim 17 and therefore includes all the limitations of that independent claims such as determining a parameter using said output and estimating the SINR of the wireless channel using said parameter. As previously explained, such limitations are not disclosed in Rafie. Accordingly, because the combination of Rafie and Marchetto and further in view of Strodtbeck does not teach or suggest all of the limitations found in claim 19 these references do not render the present claim prima facie obvious under 35 U.S.C. § 103(a). Withdrawal of this rejection is respectfully requested.

REQUEST FOR ALLOWANCE

In view of the foregoing, Applicants submit that all pending claims in the application are patentable. Accordingly, reconsideration and allowance of this application are earnestly solicited. Should any issues remain unresolved, the Examiner is encouraged to telephone the undersigned at the number provided below.

Respectfully submitted,

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